

## Section 3-6: Graphing Inequalities on a Number Line

**By the end of this lesson, you should be able to answer:**

- How do you determine if a number is a solution of an inequality?
- How do you graph the solution of an inequality on a number line?

**Where you might see this in the real world:**

- Business, government, sports, physics, geography

Define the following terms:

1. Inequality
2. True inequality
3. False inequality
4. Open inequality
5. Solution of the inequality

When we are dealing with inequalities, we are dealing with a series of possible symbols:

There are word phrases that can go along with each of these signs. Match the sign to each phrase:

"At least"

"At most"

"Greater than"

"Less than"

"Maximum"

"Minimum"

Example 1: Name all of the inequalities chosen from A-F for which 1 is a solution.

A.  $x \leq 1$

B.  $x < 1$

C.  $-2 < x < 2$

D.  $-2 < x < 1$

E.  $-2 < x \leq 1$

F.  $-\frac{1}{2} \leq x \leq \frac{1}{2}$

Example 2: Graph the solution of each inequality on a number line.

a.  $x < -2$  or  $x \geq 3$

b.  $x \geq -3$  and  $x < 2$

Example 3: By the order of the fire commissioner, the capacity of a local theatre is not to exceed 225 people.

a. Write an inequality that describes the capacity of the theatre.

b. Graph the solution of the inequality on a number line.

Problem Set:

**"I MAY NOT HAVE GONE WHERE I INTENDED TO GO, BUT I THINK I HAVE ENDED UP WHERE I NEEDED TO BE." - DOUGLAS ADAMS**